

ADDRESS DELIVERED AT THE CLEMENS VON PIRQUET MEETING *

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WE ARE assembled tonight to pay homage to Clemens von Pirquet, a great humanitarian, eminent pediatrician and outstanding scholar endowed with an inspiring and gifted pioneering spirit.

Professor Wagner** will elaborate on his numerous contributions, particularly on his epoch-making observation in relation to the tuberculin reaction, which blazed the trail to our understanding of the basic concept of allergic phenomena. Pirquet had no exact knowledge of the mechanism which governs allergic reaction, neither did he suspect to what degree another field of biology, genetics, is related to immune responses. It seems most fitting for this occasion that Professor Tatum should have been chosen as the first Pirquet Medalist.

Intensive researches as of the last few decades have given ample evidence that immunology and genetics have many points in common. For example, the genetic implication of the human blood groups was not realized at the time of Landsteiner's discovery. One can now state that this discovery was the first tangible evidence of a fruitful union of two branches of biology: immunology and genetics. This heralded a new branch of science, immunogenetics. Another lesser known fact is that mutation of fungi can be produced not only by the effect of radiation and mutagenic compounds, but also by the action of an antibody. The latter immunogenetic phenomenon was proven by S. Emerson in his experiments with *Neurospora*.

Paul Weiss stated almost two decades ago that the combined technics of genetics and immunology may well cast some light upon the biological mystery of cellular differentiation.

The area of interest to biologists and physicians in which genetics and immunology have met and may meet with benefit is large; indeed,

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it is too broad to be considered by me for a meritorious discussion. Genetics has made, in recent years, spectacular revolutionary advances in the rather complex field of molecular biology, the area in which our first Pirquet Medalist, Professor Tatum, has made fundamental contributions, for which the Nobel Prize was awarded to him.

In the rapidly developing field of genetics, the role of the genes as key reagents in the biochemistry of the cells is being elucidated by the brilliant work of biochemical geneticists, work in which our Medalist took a major share. Many of the steps of cytological mysteries have been clarified in which genes take a part in the synthesis of amino acids, vitamins, and other essential compounds. Similarly different genes control or participate in successive steps in the so-called biosynthetic pathways. These studies, as Kurt Stern stated, have made genetics a central aspect of the science of cellular physiology, which comprises nutrition and growth, energy transfer in respiration and fermentation, in synthesis and decomposition. Emerging from these phenomena, we approach a genic interpretation of differentiation, development, maturing, aging and death.

A great American scientist, David Sarnoff, defines research as the distance we must travel between the problem and the answer. There is still a long journey ahead to overcome the numerous unsolved riddles with which biologists and physicians are equally confronted.

A person such as Professor Tatum, endowed with the profundity of vision of a great scientist, will pave the way for the successful application of two powerful research tools, molecular genetics and immunology, for the advancement of science and for the welfare of mankind.

